Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A method of processing image data comprising:

receiving data indicative of a group of consecutive cross sectional images of a three dimensional volume being imaged, each of the cross sectional images being perpendicular to a z-axis, the group of consecutive cross sectional images having a first axial resolution in a z-axis direction and having a first spatial resolution in x-axis and y-axis directions orthogonal to the z-axis; and

~~dividing the data into a plurality of subsets of data, each subset of data representing a thick slab comprising a desired common number of adjacent image slices with corresponding consecutive cross sectional images;~~

performing a wavelet transform on ~~at least one thick slab representation~~ a subgroup of the group of consecutive cross sectional images solely in the z-axis direction to generate an axially transformed representation of ~~the~~ at least one thick slab having a second axial resolution lower than the first axial resolution ~~such that the at least one thick slab represents an average of all composite slices forming the at least one thick slab~~; and

performing a wavelet transform on the at least one axially transformed representation of a thick slab in x-axis and y-axis directions to generate a spatially transformed representation of the axially transformed representation of the at least one thick slab, the spatially transformed representation having a second spatial resolution lower than the first spatial resolution.

2. (Previously presented) The method of claim 1, further comprising generating reconstruction data to allow reconstruction of the at least one thick slab from the axially transformed representation.

3. (Previously presented) The method of claim 2, further comprising:

providing the axially transformed representation to a viewer; and

progressively providing the reconstruction data to allow reconstruction of the at least one thick slab at the first axial resolution based on the axially transformed representation.

4. (Canceled)

5. (Original) The method of claim 1, further comprising performing entropy encoding of the axially transformed representation.

6. (Canceled)

7. (Canceled)

8. (Previously presented) The method of claim 1, further comprising:

providing the spatially transformed representation to a viewer; and

progressively providing information to allow reconstruction of the at least one thick slab based on the spatially transformed representation.

9. (Previously presented) The method of claim 1, further comprising performing entropy encoding of the spatially transformed representation.

10. (Canceled)

11. (Canceled)

12. (Currently amended) A method of processing image data comprising:

receiving data indicative of images representing consecutive cross sections of a three dimensional volume being imaged, the cross sections being perpendicular to a z-axis;

~~dividing the data into a plurality of subsets of data, each subset of data representing a thick slab comprising a desired common number of adjacent image slices with corresponding consecutive cross-sectional images;~~

transforming, solely in one dimension, a plurality of the images in a z-axis direction to generate a first transformed representation of at least one thick slab, wherein the transforming in one dimension comprises performing at least one level of wavelet decomposition ~~such that the at least one thick slab represents an average of all composite slices forming the at least one thick slab~~; and

transforming, in two dimensions, the first transformed representation in an x-axis direction orthogonal to the z-axis direction and a y-axis direction orthogonal to the z-axis direction to generate a second transformed representation of the at least one thick slab, wherein the transforming in two dimensions comprises performing at least one level of wavelet decomposition.

13. (Canceled)

14. (Canceled)

15. (Previously presented) The method of claim 12, further comprising performing entropy encoding of at least one transformed representation of a thick slab consisting of the first transformed representation and the second transformed representation.

16. (Original) The method of claim 15, wherein performing entropy encoding further comprises Huffman encoding.

17. (Original) The method of claim 16, wherein Huffman encoding further comprises a Huffman lookup table.

18. (Previously presented) The method of claim 12, further comprising encoding information in a data stream for progressively reconstructing the

second transformed representation, followed by encoding information in the data stream for progressively reconstructing the first transformed representation.

19. (Original) The method of claim 18, wherein the data stream further comprises an entropy decoding table for decoding entropy encoded data.

20. (Original) The method of claim 18, further comprising progressively extracting at least a portion of the information from the data stream according to a desired level of viewing detail of the three dimensional volume.

21. (Original) The method of claim 18, further comprising reconstructing the second transformed representation, then reconstructing the first transformed representation to achieve a desired level of viewing detail of the three dimensional volume.

22. (Currently amended) An apparatus for processing image data comprising:

a processor module, wherein the processor module is configured to receive data indicative of a group of consecutive cross sectional images of a three dimensional volume being imaged, each of the cross sectional images being perpendicular to a z-axis, the group of consecutive cross sectional images having a first axial resolution in a z-axis direction and having a first spatial resolution in x-axis and y-axis directions orthogonal to the z-axis;

a processor module, wherein the processor module is configured to ~~divide the data into a plurality of subsets of data, each subset of data representing a thick slab comprising a desired common number of adjacent image slices with corresponding consecutive cross sectional images, and further configured to~~ compress a subgroup of the group of consecutive cross sectional images solely ~~at least one thick slab representation~~ in the z-axis direction to generate an axially transformed representation of ~~the~~ at least one thick slab, the axially transformed representation having a second axial resolution lower than

the first axial resolution ~~such that the at least one thick slab represents an average of all composite slices forming the at least one thick slab~~; and

a processor module, wherein the processor module is configured to perform wavelet transformation on the axially transformed representation of the at least one thick slab representation in a spatial direction, the spatially transformed representation having a spatial resolution lower than the first spatial resolution.